

A TRANSIT ORIENTED DEVELOPMENT CASE STUDY

GENERAL IRON WORKS
&
PROPOSED BATES LIGHT RAIL STATION

ENGLEWOOD, COLORADO

DECEMBER 2002

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FUNDED BY:
HERITAGE GRANT #00112A
STATE OF COLORADO OFFICE OF SMART GROWTH

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PREFACE

There is a need to ensure that individual TOD projects throughout metro Denver's light rail system be unique to their particular locations, rather than compete with one another. Communities should be able to provide a unique enhancement to local housing options rather than compete for TOD occupancy with similar projects in other communities.

This case study is intended to serve as a model for evaluating the community and economic development potential for Light Rail Transit Oriented Development (TOD) sites in the Denver Metropolitan area. This case study of the General Iron Works (GIW) site in Englewood, Colorado is a first step in melding community personalities with development opportunities afforded by light rail.

The GIW site is located on the southwest light rail line. Lingering environmental concerns were long an impediment to redeveloping this former iron foundry site. The City of Englewood has invested significant efforts into addressing cleanup and reuse issues to position this site for TOD development.

As of today, the site is vacant and awaiting pending redevelopment. This study evaluates:

- (1) the unique characteristics that a light rail station may impart to the surrounding area regarding TOD specific housing demand;
- (2) how transit oriented development of GIW can further the City towards its housing goals and ability to service its existing community; and
- (3) how the installation of a light rail station may impact site desirability as a business location.

This study was commissioned by the City of Englewood, Community Development Department, and funded by Heritage Grant through the State Office of Smart Growth. During the course of the study, various interviews were conducted with community development officials, real estate development representatives, and Englewood Businesses. This study incorporates the results of an Englewood-wide survey of local businesses and their employees regarding their housing needs, conducted under the same Heritage Grant. Additionally, a review of existing light rail and TOD related literature was conducted. All research, surveys, observations, opinions, and conclusions presented herein are solely those of the research team and do not reflect the opinions of the State Office of Smart Growth, the City of Englewood, nor its employees or elected officials.

EXECUTIVE SUMMARY

As a model for evaluating the community and economic development potential for Light Rail Transit Oriented Development (TOD) in the Denver Metropolitan area, this case study of the General Iron Works (GIW) site in Englewood, Colorado evaluates:

1. The impacts that a light rail station may have on the surrounding area;
2. TOD specific housing demand; and
3. How a light rail station may impact a site's desirability as a business location thus enhancing economic development opportunities.

General Iron Works, once a prominent Englewood employer and now vacant, sits adjacent to the light rail line, and despite environmental remnants of its former use, is ready for redevelopment. GIW represents an opportunity to attract new development and investment to North Englewood. Building the Bates Light Rail Station at GIW can further local housing goals including:

- Promoting a diverse mix of housing types, prices and sizes;
- Maintaining and improving the existing housing stock; and
- Improving the jobs/housing balance.

This case study discusses households who will self-select to locate near the proposed Bates Light Rail Station. A recent transportation study for Englewood suggests that 30% of households that would move to GIW would commute to work daily via the Southwest Light Rail line.¹ This case study demographically characterizes these commuting households, as well as other households that will frequently use light rail and therefore find GIW's housing options attractive. While this study only looks at households that will prioritize transit access in their location decisions, there will be additional housing demand at GIW from households simply attracted to new housing options in Englewood.

OPPORTUNITIES AFFORDED GIW BY LIGHT RAIL

- The City of Englewood is completely surrounded by other cities, lacking the ability to grow outward.
- The community has identified the need to expand the diversity of housing options for its existing and future residents.

¹ City of Englewood Traffic Study conducted for the City of Englewood by Carter-Burgess, 2002.

- The Southwest Light Rail line can be a catalyst for needed changes. Light rail may provide the economic stimulus at this site, to enable cleanup and redevelopment to meet community housing goals.
- Constructing the proposed Bates Light Rail Station at the General Iron Works (GIW) site will further positive changes in local housing market dynamics.
- The light rail line can foster redevelopment and Transit Oriented Development to accommodate the community's vision for housing diversity.

Light Rail's Area of Influence at GIW

There are opportunities to leverage transit influence into at least three distinct product and price-point niches.

1. A primary zone (0 to ¼ mile) carries the greatest premium for proximity to transit,
2. A secondary zone (¼ to ½ mile) carries some premium for proximity to transit,
3. A tertiary zone (more than ½ mile) can influence housing market demand outside of the direct areas of primary and secondary influence. This demand represents households that may find transportation options desirable, but can't or won't be willing to pay a premium for closest proximity to the amenity.

Primary and secondary light rail influence from the proposed Bates Station encompasses the Broadway commercial corridor and Englewood CityCenter development potentially providing economic synergy between all three nodes.

TRANSIT ORIENTED HOUSING DEMAND

- Three primary reasons why households choose to live in a particular location are (1) physical design features of the home and neighborhood, (2) proximity to a job, and (3) lifestyle fit.
- A light rail transit station will be attractive to various segments of the population seeking lifestyles choices such as convenient access to jobs, leisure activities, educational facilities, shopping, convenience for telecommuting and home-based business, or simply to be near transportation.
- Not all job-based movers will commute to Denver: there may be demand from local employees choosing a GIW location to be closer to their job in Englewood;
- Not all lifestyle-based movers will travel to Denver; existing Englewood residents may seek alternative housing options due to life cycle or life style changes.
- Housing demand can be enhanced by constructing a quality built-environment and meeting the housing needs of various niche markets.

POTENTIAL HOUSING DEMAND NICHEs

- Destination Commuter Demand- persons choosing a TOD location because of easy access to other locations provided by light rail;
- Local Employee Housing Demand- persons choosing a TOD location because of new housing options closer to the job they have nearby; or
- Local Housing Market Churn- persons already living near by, but seeking alternative housing options due to life cycle or life style changes.

DESTINATION COMMUTER DEMAND

“Destination commuters” are those choosing a housing location because the light rail line provides them access to specific activities. There are six destination commuter demand sources evaluated herein. The following transit-seeking household types cumulatively create demand for TOD housing at GIW

Household Type	Demand Driver
1. Downtown Shoppers	Access to urban shops and retailers
2. Public Transportation Oriented	Ease of public transportation
3. Destination Workers	Downtown job market
4. Leisure/Recreation Seekers	Restaurants, culture, theatre, clubs
5. Students	Higher education facilities
6. Home-Based Businesses	Access to clients, colleges, resources

Destination Workers

- Downtown Denver is a desirable place to work and considered a positive draw for households making housing decisions based on the location of their job.
- The primary market for households moving to be near their job *and* near transit is in the 35-year old and older market.
- While a downtown Denver job is an attraction, most downtown workers would rather live outside the City.
- The employment center of downtown Denver generates housing demand for outlying sites, particularly those well serviced by transportation access.
- Light rail can link downtown Denver job opportunities to outlying housing options. Being just 20 minutes from downtown Denver by light rail, the GIW site presents an opportunity to capture downtown’s job driven demand.

Leisure/Recreation-Seekers

- Recreation and leisure activities provide entertainment to persons from all demographic categories.
- Easy access to leisure activities is a priority for many households, particularly those in the 55-year old or older age group.
- Leisure activities are synergistic with other household activities, such as after-work activities, and provide additional attraction to transit station locations providing such access.
- Access to leisure activities via light rail will be attractive to retirees and empty-nesters and an amenity to all householders that locate to GIW. Nearby Englewood commercial nodes, the Broadway commercial corridor and CityCenter, are emerging as entertainment and cultural destinations, although not currently strong housing demand drivers on their own. The addition of leisure seeking households will create additional demand for such emerging uses.

Higher Education Students

- College students are a notable portion of existing light rail riders.
- Because financial resources are likely somewhat limited among traditional (younger) students attending school full time, reliable public transportation is likely a desirable housing option.
- Students primarily demand short-term housing situations, i.e.- rental units. There may also be demand for ownership units by a student (or parent) who wishes to keep the unit as a longer-term investment property.
- Reasonably priced housing options near a light rail station would be attractive to student households. Housing options that would appeal to this niche include units that would allow roommate situations.
- In that the overriding factor for this group is likely to be financial, successful student-type housing could be dispersed further from the light rail station and still provide a reasonable transportation option.

Public Transportation Oriented

- Some households choose housing primarily based on access to public transportation. This may be due to personal choice, financial need, physical ability/disability requirements, political and/or environmental issues, or other reasons.
- Currently, light rail related housing options outside of downtown Denver are in short supply due to the limited extent of light rail in metro Denver. There are few construction-ready housing or mixed-use sites currently available along the southwest line.
- The next transit stations to open along a light rail line to on the Southeast corridor, scheduled for 2007. At that time, it will be several years for new TOD development to be built.

- The GIW site could meet the needs of the public transportation oriented with the construction of the Bates light rail station.

Home-Based Businesses

- Home based businesses and telecommuters will find a TOD location attractive due to connectivity to client, vendor, and professional teaming networks.
- This market niche is likely to fall primarily into 35-year old and older life-cycle stages.
- Units targeting this niche should address home office needs such as space, utility, and telecommunications.
- The Bates Station will be an amenity to home-based businesses and telecommuters locating at GIW.

Downtown Shoppers

- Shopping as a household activity cuts across all age categories.
- Convenience to shopping is viewed as an additional amenity of light rail, but this source alone is not likely to be a significant housing demand driver
- Access to downtown Denver or nearby Englewood shopping will be an amenity to GIW, but not a sole housing demand driver.

LOCAL EMPLOYEE DRIVEN HOUSING DEMAND

- Englewood businesses employ a range of skilled employees at a variety of wage rates. There is a notable pool of higher wage employees, of which about 26% stated they would live within the City if the right housing options were available.
- The GIW site offers buildable land with easily accessible downtown amenities (leisure, recreation, shopping, higher education).
- Higher wage households have a desire to live in the City and command the income necessary to meet TOD price premiums for lifestyle amenities provided by Light Rail.
- Proximity to light rail can spur investment and upgrading of housing stock in the secondary and tertiary light rail zones of influence, accommodating lower wage employees.
- Englewood businesses anticipate employment growth in high wage labor categories which would support long-range development of both lower-priced (<\$150,000) and higher-priced (>\$200,000), modern, owner-housing options in Englewood.
- Housing market research indicates need for higher-end rental units in Englewood to accommodate employees of local businesses.

LOCAL CHURN DRIVEN HOUSING DEMAND

- Englewood residents have voiced concern over the lack of housing options in the City. In many cases this concern is voiced by leaving the City altogether.
- Many long-term residents have a need to address their physical environs and move into housing best suited to their aging life-cycle stages.
- Many long-term residents have the financial ability to move into new housing if it were to become available in Englewood.
- Young families often leave the City due to a lack of move-up housing for growing families. This is particularly true for the older neighborhoods such as GIW's North Englewood.
- The GIW site and surrounding area of influence offers easily accessible downtown amenities (leisure, recreation, shopping, higher education) for move-up housing. Buildable land in close proximity to the station can accommodate higher-end, higher density housing. Increased value premiums can spur investment and upgrading of older homes within the secondary zones of light rail influence.
- Englewood residents could support long-range development of both lower-priced (<\$150,000) and higher-priced (>\$200,000), modern, owner-housing options in Englewood.
- Housing market research indicates need for higher-end rental units in Englewood to accommodate resident demand for rental units.

GIW AS A TOD BUSINESS LOCATION

- Light rail can be an amenity to a business by providing access to labor, suppliers, customers, educational facilities, transportation links, and housing. In particular, light rail offers a comparative advantage to businesses that are labor intensive.
- Retail business benefit most from a location in close proximity to a transit station that offers high visibility, and good pedestrian traffic. A transit location closest to the station would provide the best transit-oriented characteristics.
- Office based businesses will benefit from labor market access provided by light rail. That benefit will extend to the ¼ mile primary zone of influence, but fade quickly afterward.
- Access to labor markets is a benefit to office businesses locating near light rail stations. The extent to which this perceived benefit is realized is uncertain, however. GIW's location on the rail line provides only marginal transit convenience to the existing labor market.
- The nature of businesses locating to GIW in the future will likely reflect the types of labor to which the rail line provides access, and consequently, labor will be more apt to utilize light rail.
- The addition of TOD housing options at GIW itself will positively influence the desirability of GIW as a business location.

SUMMARY AND CONCLUSION

- It is estimated that destination worker, leisure seeking, and public transportation oriented households cumulatively comprise about 3.25% of the overall market. Demand from other sources may raise that penetration rate by some small amount. Given metro Denver growth of around 12,750 households for the 2001/2002 period, a 4% penetration indicates potential metro-wide TOD housing demand around 500 households annually.² Given light rail's limited service area, there will be little competition for GIW development until the next service expansion in 2007.
- There is an opportunity to take the now vacant GIW site and develop a neighborhood setting and unit mix targeted to work, leisure and public transit lifestyle choices in the primary zone of influence (¼ mile radius from station).
- The "light rail influence" may provide the value-added opportunity to promote additional investment in the existing housing stock in secondary and tertiary zones of influence (greater than a ¼ mile radius from station), thus fostering additional housing diversity.
- A well-planned mixed-use development can foster TOD business development along with providing needed housing options to the Englewood community.
- Economic synergy created between Bates Station, CityCenter, and the Broadway commercial corridor will likely improve the business climate in Englewood. The increase in "life-style" seeking residents can foster developing commercial, recreational and cultural related facilities within this "economic enclave."
- The diversity in market demand for commercial and residential development can be a positive market force in the City of Englewood, given appropriate development of the GIW site.

² The overall size of the market for TOD housing will fluctuate with population growth over time and specific absorption at GIW would entail a more detailed analysis of absorption by product type.

INTRODUCTION

CASE STUDY SCOPE

This case study discusses households who will self-select to locate near the proposed Bates Light Rail Station. A recent transportation study for Englewood suggests that 30% of households that would move to GIW would commute to work daily via the Southwest Light Rail line.³ This case study demographically characterizes these commuting households, as well as other households that will frequently use light rail and therefore find GIW's housing options attractive. While this study only looks at households that will prioritize transit access in their location decisions, there will be additional housing demand at GIW from households simply attracted to new housing options in Englewood.

THE GENERAL IRON WORKS SITE AND PROPOSED BATES STATION

The 20-acre General Iron Works (GIW) property is located on the east side of Santa Fe Drive, north of Dartmouth Avenue, and equidistant between the Evans and Englewood light rail stops.⁴ In terms of community landmarks, GIW is located about 1 mile north of the Englewood's CityCenter TOD mixed-use development (city offices, residential, and commercial uses) at the Englewood light rail station near the intersection of Hampden Avenue and Santa Fe Drive, about a mile west of Englewood's Broadway commercial district, and approximately 7 miles south of Denver's central business district. The site is on the eastern rise of the Platte River Valley; the Platte River runs about .25 mile to the west. This elevation provides the site with prominent visibility from Santa Fe Drive and affords views of the Rocky Mountain Front Range.

The site was home to the 280,000 square foot General Iron Works iron foundry and fabrication facility. GIW operated on the site until about 1985. After that time, the facility was sold to a salvage operator who maintained short-term leases to several interim users. The property was generally characterized by broken windows, graffiti, loitering, and often undesirable, if not illegal, activities.

Environmental contamination left from former foundry operations quelled investor interest in upgrading the site from its former heavy industrial use. Property ownership is being managed through a cooperative effort of the Englewood Urban Renewal Authority and the Regional Transportation District (RTD). The northern portion of the site is being remediated to enable the construction of an RTD light rail maintenance facility. The City of Englewood has conducted environmental assessments and is preparing a Colorado Voluntary Cleanup Plan for residential mixed-use development on the southern 11-acre portion of the site. These environmental activities were funded through a USEPA brownfields grant to the City.

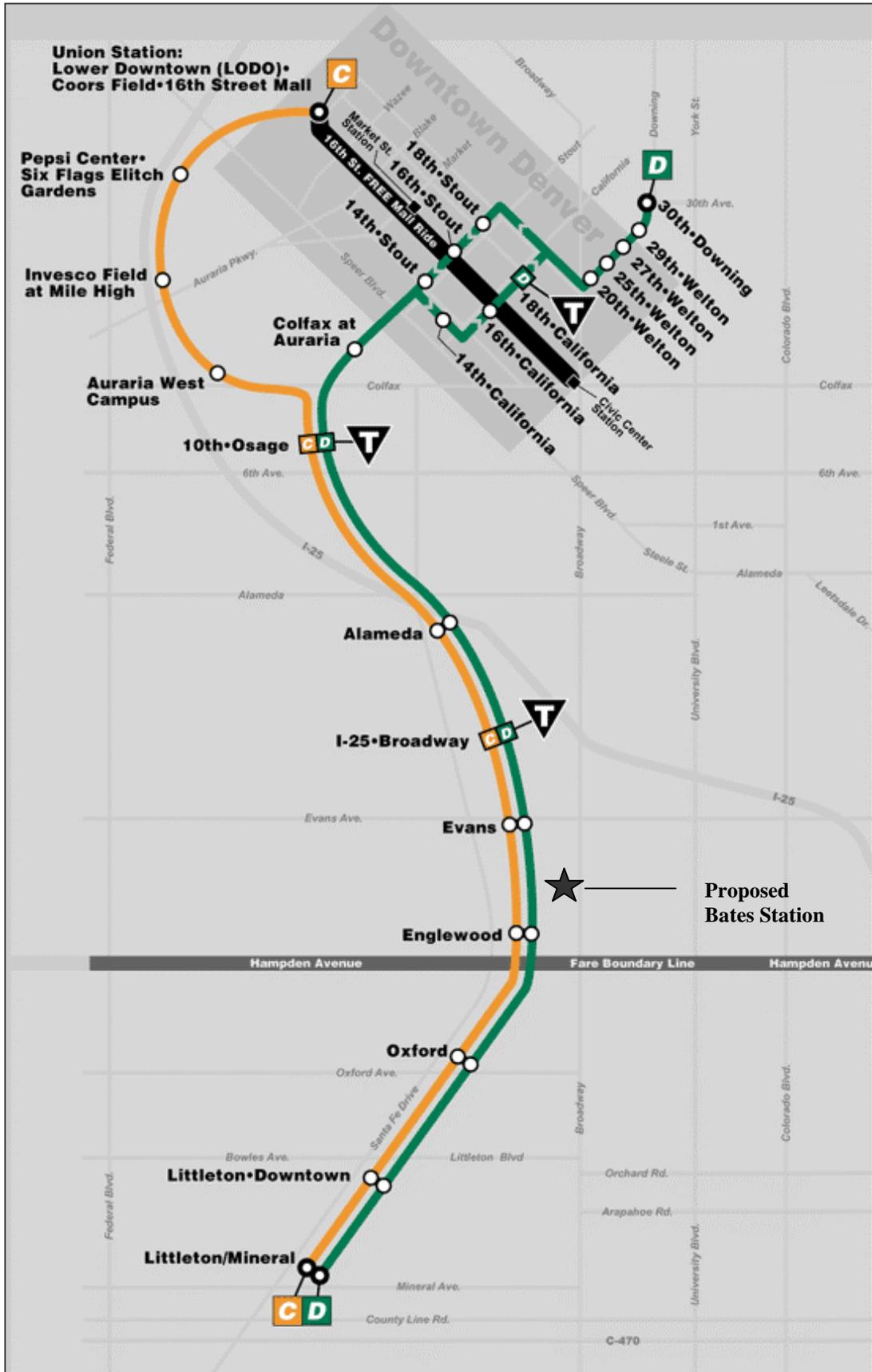
The GIW site is situated between the rail tracks and Elati Street. Older, relatively small, bungalow style homes extend from the west side of Delaware Street and typify the residential neighborhoods of north Englewood. Properties north and south along the rail tracks are industrial in nature. Located to take advantage of rail access, these industrial facilities were constructed

³ City of Englewood Traffic Study conducted for the City of Englewood by Carter-Burgess, 2002.

⁴ The regional Fare Boundary Zone along this corridor is at Hampden Avenue, making the Englewood Station the last station on the line that is charged a local fare to and from downtown, while all stations south are assessed a higher regional fare.

through the early and middle decades of the twentieth century in a linear fashion, hugging the rail line.

Redevelopment is being proposed for the GIW site and the City and RTD are negotiating to finance a “kiss-and-ride” transit stop (Bates Station) to service this new development. Kiss-and-ride stops are defined as transit stations that do not provide any significant parking facilities.



COMMUNITY GOALS

Englewood is experiencing a lack of diversity in housing stock. This is manifesting itself as a shortage of housing options for various life-cycle demographic categories such as growing families, seniors, and move-up households. The Englewood School District has noted pupil loss directly attributable to a lack of housing suitable to young families. A survey of workers at local businesses conducted for this study identifies a lack of appropriate housing as a reason for employees not living in Englewood.

Taking these observations under advisement, Englewood has identified various comprehensive planning goals and objectives that include:

1. Promoting a diverse mix of housing types, prices and sizes.
 - a. Encourage development of life cycle housing serving young singles, families, empty nesters, independent seniors and assisted seniors.
 - b. Attract in-fill development types that improve the city housing mix.
2. Maintaining and improving the existing housing stock
 - a. Develop incentives for home ownership and property improvement
3. Improving the jobs/housing balance.
 - a. Encourage mixed-use development with housing and jobs.
 - b. Expand work/live opportunities.
 - c. Evaluate the need for “workforce housing” in conjunction with significant business relocations or expansions.

This case study evaluates how Transit Oriented Development at GIW can be used to leverage the community’s success in achieving these goals.

SOCIO-ECONOMIC POTENTIAL PROVIDED BY LIGHT RAIL

In July 2000, RTD opened the Southwest Corridor light rail line running south from Broadway 8.7 miles along Santa Fe Drive to Mineral Avenue. Initial response to the line's opening exceeded all projections and ridership continues to be strong with over 13,000 daily users. The success of this line presents opportunities to promote housing and business growth within the City of Englewood.

The Southwest line has effectively created an appealing means for the southern communities of metropolitan Denver to access the downtown Denver market. The rail line connects these outlying communities to the many cultural attractions and economic opportunities associated with the downtown area. The rail line also represents bi-directional movement through Englewood which may create residential and commercial development opportunities. Residents may take advantage of improved access to local and outlying employment, while businesses may

take advantage of improved access to outlying labor markets and business networking opportunities.⁵

The City of Englewood has the benefit (or the onus) of being located directly in the center of the Southwest Corridor. Two light rail stations currently serve Englewood: one at Oxford Avenue and one at Englewood City Center. A third stop, the “Bates Station,” is proposed to serve the GIW redevelopment project.

With or without expansion, the Southwest Corridor light rail line can significantly impact the Englewood community. Various studies have shown that light rail impacts can be either positive or negative. There are several factors that contribute to the impact of a transit station on its immediate vicinity. Among them are:

- Local accessibility (of the station itself),
- Regional accessibility (of the transit line),
- Increased exposure to pedestrians and commuters (commercial potential),
- Noise from transit station activity, and
- Visual intrusion or enhancement.

These factors may represent pros or cons, depending on whether the location is being considered as a housing or business location.

For those desiring to reside near light rail,

1. local accessibility will determine how close to the station a resident can “conveniently” live,
2. the greater the regional access provided by the rail system, the greater may be the usefulness and convenience of the system to a nearby resident, and
3. volumes of people in transit, noise, and visual intrusions may be detrimental to housing demand. The interplay of these factors at a particular location will directly influence housing demand immediately adjacent to the station, as well as a generally wider area.

Alternatively, a business may

1. put great weight on regional accessibility to reach its potential labor pool,
2. benefit from increased visibility and exposure to the volume of people in transit, and

⁵ RTD long-range plans include extending the southwest line further south to C-470, and then east along C-470 to Lucent Boulevard and ultimately connect the line to the Highlands Ranch Business Park, a significant new Class A/B office park with over six million square feet of commercial space planned at build out.

3. put less weight on visual factors than on convenience to transportation.

This study identifies and evaluates comparative advantages offered by light rail station proximity to both residences and businesses.

SUMMARY OF OPPORTUNITIES AFFORDED GIW BY LIGHT RAIL

- The City of Englewood is surrounded by other communities, lacking the ability to grow outward.
- The City and its community have identified the need to expand the diversity of housing options for its existing and future residents.
- The Southwest Light Rail line can be a catalyst for needed changes. General Iron Works, once a prominent Englewood employer, is now vacant, adjacent to the light rail line, and ready for redevelopment. The GIW site is impacted by environmental remnants of its former use and is considered a brownfields site. Light rail may be able to provide the economic stimulus at this site, to enable cleanup and redevelopment to meet the communities housing goals.
- Positive changes in local housing market dynamics will be furthered by construction of the proposed Bates Light Rail Station at the General Iron Works (GIW) site.
- The light rail line can foster the redevelopment of TOD to accommodate the community's vision for housing diversity.

TRANSIT ORIENTED DEVELOPMENT: POTENTIAL HOUSING DEMAND

LIGHT RAIL'S AREA OF INFLUENCE ON DEVELOPMENT

Development of the Bates Station will enhance the sense of community in north Englewood and mutually enhance the surrounding market. The station's "Area of influence" refers to the geographic area which is likely to be directly impacted by construction of the Bates light rail station. There are several factors that contribute to the impact of a transit station on its immediate vicinity. Among them are:

- Local accessibility (of the station itself),
- Regional accessibility (of the transit line),
- Increased commercial potential,
- Noise, and
- Visual intrusion or enhancement.

Housing markets being directly impacted are those where the presence of light rail influences the type, style, and demand for neighborhood housing. While a commuter living several miles away may benefit from light rail by having a transportation alternative, the strength and depth of the housing market in his/her neighborhood will not likely be impacted by light rail's presence.

The most effective way to evaluate the geographic extent of direct impacts is to measure property value effects. Various studies using this approach show the spatial extent of a transit station's area of influence to be between one-quarter mile and several miles. Most studies argue for an area of influence ranging from one-quarter to one-half mile, and it is generally recognized that the greatest influence on development occurs within ¼ mile of the transit station. A 1997 study of the Bay Area Rapid Transit (BART) system in San Francisco, California indicates property value of single family housing units are impacted by proximity to transit stations as far away as 2,500 feet; while multi-family units are influenced only within 1,300 feet.

As would be expected, these studies have generally found residential real estate price premiums for units closer, and more accessible, to light rail. This price premium generally declines with distance from the light rail station.

Based on these research studies, the geographic extent of the housing market subject to a direct influence from a light rail station is assumed to be about ½ mile from that station. There are two zones within the area of influence, a primary zone of influence from 0 to ¼ miles and a of influence zone from ¼ to ½ miles from the station. This creates an opportunity to target at least two market profiles for transit driven housing demand: (1) relatively higher premiums for housing closest to the light rail station; and (2) somewhat lower premiums for housing near the station.

Because of the physical barriers created to the west by railroad tracks and by Santa Fe Drive, GIW's area of influence is limited to a north, south and easterly direction. The primary zone of influence (quarter mile) encompasses the GIW site itself and extends to about Yale Ave on the North, Dartmouth Avenue on the south, and Cherokee Street on the east. The secondary zone of

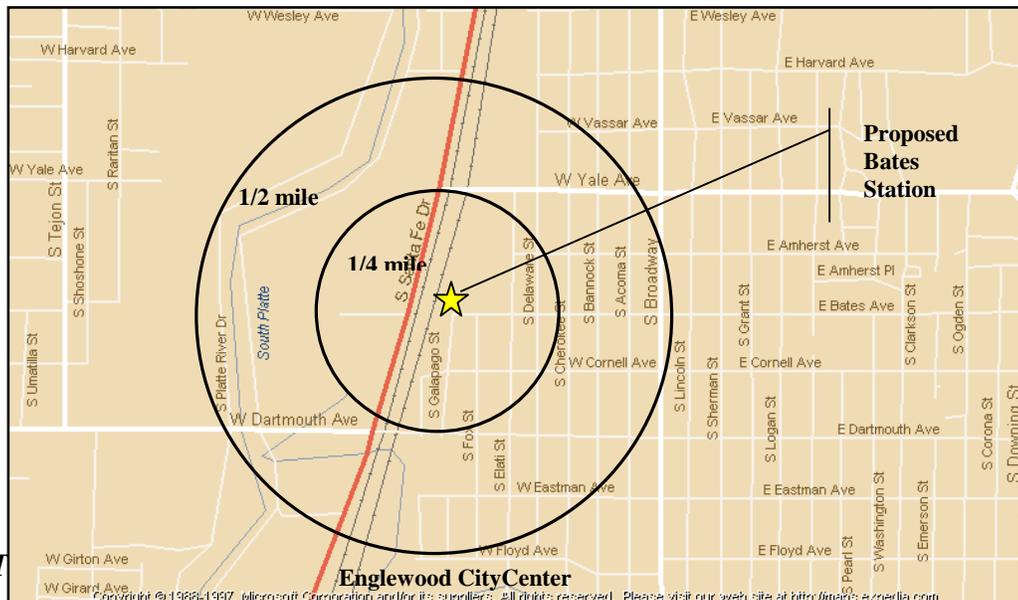
influence (¼ to ½ mile) extends to Harvard Street on the north, Floyd Street on the south, and Broadway on the east.

The area of light rail influence from the proposed Bates Station extends east to the Broadway commercial corridor, a traditional commercial activity center in Englewood. The area of influence from the proposed Bates Stations extends south to the City Center area, a successful new TOD mixed-use project developed at the Englewood Light Rail Station. The Bates Station can form an important geographic link between two other significant activity centers in the community, potentially providing economic synergy between all three nodes.

There is also likely some degree of transit driven housing demand outside of the area of direct influence. This tertiary zone is outside of the ½ mile radius and where there may be little or no premium paid by home buyers or renters, but housing market demand is still stimulated by access to light rail. The geographic extent of this tertiary zone is uncertain, but is dependant on a time-distance tradeoff, presumably extending several miles.

SUMMARY OF OBSERVATIONS AND MARKET IMPLICATIONS

- There are opportunities to leverage transit influence and diversify the housing market into at least three distinct product and price-point niches.
 1. A primary zone (0 to ¼ mile) carries the greatest premium for proximity to transit,
 2. A secondary zone (¼ to ½ mile) carries some premium for proximity to transit,
 3. A tertiary zone (more than ½ mile) can influence housing market demand outside of the direct areas of primary and secondary influence. This demand represents households that may find transportation options desirable, but can't or won't be willing to pay a premium for the amenity.
- Primary and secondary light rail influence from the proposed Bates Station encompasses the Broadway commercial corridor and Englewood CityCenter development potentially providing economic synergy between all three nodes.



SOURCES OF TRANSIT ORIENTED HOUSING DEMAND

Household survey data collected as part of the nationwide U.S. Census Bureau’s American Housing Survey (1999) enables the demographic profiling of recent household relocations. Housing survey data is evaluated along with light rail ridership data to identify the role that a light rail transit station can hold in attracting niche housing demand.

HOW DO HOUSEHOLDS SELECT A NEW NEIGHBORHOOD?

The American Housing Survey identifies the main reason for choosing their neighborhood for almost 16 million persons who moved during the previous year (1998). The chart that follows illustrates the responses:

MAIN REASON FOR SELECTING A NEIGHBORHOOD			
Reason For Move	All Movers	Central City	Suburban
Convenience to Job	21%	23%	20%
Looks/Design of Neighborhood	17%	15%	19%
Particular Housing Unit	16%	15%	15%
Convenience to Friends/Relatives	14%	13%	14%
Good Schools	7%	6%	9%
Convenience to Leisure Activities	2%	2%	2%
Convenience to Public Transit	1%	2%	1%
Other reasons/multiple reasons	22%	24%	20%

Source: American Housing Survey 1999, U.S. Census Bureau; Development Research Partners

From a macro view, the above table highlights the three broad reasons why households choose to live in a particular location: (1) to be closer to work,⁶ (2) to enhance their lifestyle, and (3) physical design features. Convenience to a job is the most notable reason that people choose a location. While it appears that only a small percentage of persons move mainly for leisure and/or for public transit access, the important observation to note is that these activities are specifically identified as reasons. This shows that such a consideration is of significant importance even if the actual number of responses is relatively low.

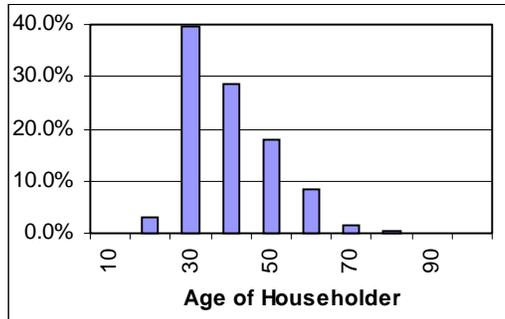
The following charts depict American Housing Survey data for recent household moves.⁷ Because design features are an important factor in housing selection and physical design can be

⁶ Because the data includes persons who may make major geographic relocations, such as to an entirely new metro area, this statistic may overstate the importance of this factor in choosing location within any particular metropolitan area.

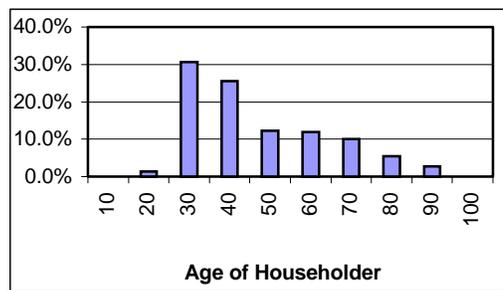
⁷ Data set represents all survey respondents who’ve moved in the last 12 months and cited that main reason for choosing their new neighborhood.

closely linked to life-cycle stage (see appendix A), the following data is depicted by life-cycle category.

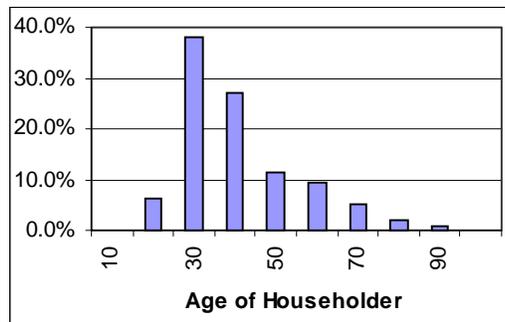
Primary Move was For Convenience to Work



Primary Move was For Convenience to Leisure Activities



Primary Move was For Convenience to Public Transportation



As illustrated in the previous charts,

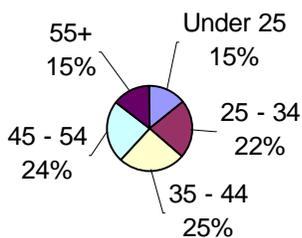
- 30-year olds are the most active movers across all categories, followed by 40-year olds. This is logical given the major shifts this age group experiences- establishing careers and families.
- Householders who move closer to their jobs tend to be more concentrated in the 30-year old to 50-year old range.
- Householders move closer to their leisure activities tend to extend into the later years, with notable activity in the 60-, 70-, and 80+-year age ranges.
- Householders moving to be near transit are more broadly spread across age ranges from 20- to 60-year olds, and tend to be more concentrated in the 30-year old to 50-year old range.

Light Rail as a Housing Amenity

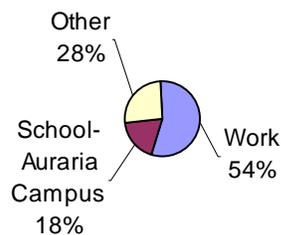
Light rail transit systems are designed to facilitate the movement of people. Considering all the reasons why households move to a new neighborhood, moving closer to a light rail station can enhance a household's access to jobs, leisure activities, and public transit.

According to the December 2000 Southwest Light Rail Line Passenger Survey: Report of Results,⁸ light rail riders were predominantly destined for downtown Denver. The highest percentage of riders were reported to be headed for the 16th Street Mall stop at California. Ridership trends show the light rail line to be a unidirectional system, gathering riders from outlying areas and transporting them downtown, with little reverse commuting. The following data illustrates how light rail is currently being utilized:

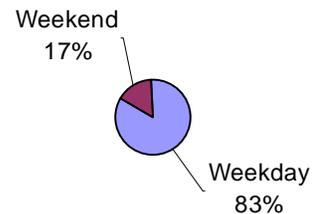
Light Rail Ridership



Trip Purpose



Day of Week



⁸ National Research Center, Inc., Boulder, Colorado.

The statistics illustrate indicates that the Southwest Light Rail line is serving the various needs of its market area.:

- Riders are fairly even spread across all life cycle categories, with a relative bulge amongst 35- to 54-year olds.
- The existing light rail line is being well utilized by downtown workers and students, with notable ridership for other, presumably life-style oriented, trips.
- The light rail line is primarily used during the week, reflecting the majority use by workers and students. Weekend ridership is significant though, and presumably reflecting leisure and recreational destinations.

Downtown businesses, educational facilities, cultural attractions, shopping, evening entertainment, and/or sporting events have been identified as potential transit oriented destinations to which housing market participants may be attracted. Those seeking residence in proximity to a light rail transit station are likely to be those who desire to use the transit facility regularly and fall into two broad categories: *lifestyle driven demand* and *job driven demand*.⁹

LIFESTYLE DRIVEN HOUSING DEMAND

Commuting convenience to downtown Denver jobs maybe a secondary reason to locate for many households. Householders may prioritize lifestyle reasons in choosing where to live. Any or all of the following life-style factors could attract a household to a transit oriented development at the GIW Site:

1. Life-cycle situation of the householder;
2. Convenience to recreation and leisure activities including downtown Denver shopping, sporting events, restaurants and other cultural facilities;
3. Career choices such as home-based businesses requiring downtown access and
4. Students of downtown educational institutions and/or Arapahoe Community College; and
5. A desire or need to be near light rail transit for its own sake.

While there is likely to be overlap in the demographic characteristics of the above-described factors, each represents a market niche that might be receptive to locating along the light rail corridor, given adequate housing choices. Additionally, housing options may prove attractive to current Englewood residents seeking a change in living situation due to life cycle or life style changes.

⁹ Along with an evaluation of American Housing Survey data, likely niche housing markets were identified via interviews with City of Englewood officials, RTD representatives, the Downtown Denver Partnership, and light rail passenger surveys.

JOB DRIVEN HOUSING DEMAND

Moving closer to a job is the number one reason that household move. For GIW, this could mean closer to a job in Englewood, or a closer to a job in downtown Denver. The term “Destination Workers” is used to describe those residents seeking convenience to a commuter job as the primary reason to move close to light rail. But, will the existence of a light rail station alone attract residents to a GIW TOD housing development? Yes and no, for several reasons.

- Current light rail access from Englewood to job centers is limited. Until the proposed Southwest extension to Highlands Ranch Business park, the Southeast Line to the Denver Tech Center, and other proposed lines are complete, the primary employment destination is downtown Denver.
- Downtown Denver is not that far from Englewood. The primary convenience of light rail is time savings and avoiding parking hassles downtown. Savings in terms of time in transit may not be significant compared to driving the route. Relief from parking hassles may be offset by distance from the downtown light rail stop and distance to a specific place of employment. And light rail ticket rates may offset Downtown parking rates.
- A Highlands Ranch Business Park light rail terminus is not that far from Englewood. Even upon the completion of the southwest rail line extension, it may not be any more convenient for commuters to take light rail rather than drive.
- Southeast rail line access to the Tech Center may be arduous. The light rail line commute time to this employment center, via a rail line transfer, may be sufficiently time consuming to make the commute more convenient by automobile.
- Proposed expansions of the light rail system may eventually provide convenient access from Englewood to cross-metro employment centers to the north and west.

Given the above discussion, a reasonable conclusion would be that downtown workers will likely choose a GIW location because of a desire to live in that particular setting rather than strictly due to commuter access. Jobs located in Englewood may also provide impetus for housing demand as additional housing options are made available.

SUMMARY OF OBSERVATIONS AND MARKET IMPLICATIONS

- Three primary reasons why households choose to live in a particular location are (1) physical design features of the home and neighborhood, (2) proximity to a job, and (3) lifestyle fit.
- A light rail transit station will be attractive to various segments of the population seeking lifestyles choices such as convenient access to jobs, leisure activities, educational facilities, shopping, convenience for telecommuting or home-based business, or simply to be near transportation.
- Not all job-based movers will commute to Denver: there may be demand from local employees choosing a GIW location to be closer to their job in Englewood;

- Not all lifestyle-based movers will travel to Denver; existing Englewood residents may seek alternative housing options due to life cycle or life style changes.
- Constructing a quality built-environment and meeting the housing needs of various niche markets can enhance housing demand.

A CLOSER LOOK AT POTENTIAL HOUSING DEMAND AT GIW

SOURCES OF POTENTIAL HOUSING DEMAND

The choice to live near light rail at GIW is one that may appeal to persons in any age, career, or lifestyle. One factor for creating a successful housing development will be to provide for “niche households” who see transit access as a priority. Another factor for success is to providing a mix of new housing designs that provide appropriate housing options to complement Englewood’s existing housing stock.

The relative importance of these two factors to a particular household can vary. Development can take advantage of this balance through geographical planning of development. Housing designs closest to the transit station should best suit those households who hold a “transit amenity” in highest regard. This transit amenity effect diminishes with distance from the station, enabling a geographic distribution of housing designs as well. The key to understanding transit-oriented housing designs is to understand the demographic market niches that embrace a transit amenity.

Niche market demand will be methodically identified by first identifying housing demand sources; second, identifying appropriate sub-markets within each source; and third, identifying demographic categories within each sub-market that will be the most likely to prioritize light rail access as a housing amenity.

SUMMARY OF OBSERVATIONS AND MARKET IMPLICATIONS

Sources of TOD housing demand are identified as:

- Destination Commuter Demand- persons choosing a TOD location because of easy access to other locations provided by light rail;
- Local Employee Housing Demand- persons choosing a TOD location because of new housing options closer to the job they have nearby; or
- Local Housing Market Churn- persons already living near by, but seeking alternative housing options due to life cycle or life style changes.

DESTINATION COMMUTER DEMAND

In its current configuration, downtown Denver is Southwest Light Rail line's primary destination. The following table describes broad categories of downtown destination light rail riders and the American Housing Survey response data that will be used to evaluate each as a potential source of Destination Commuter demand for housing at GIW:

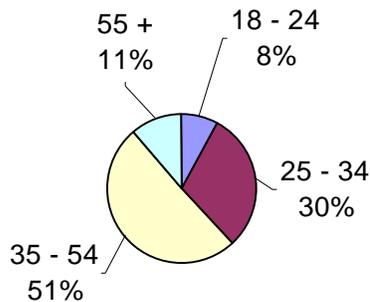
American Housing Survey Responses Evaluated Households Who Moved in Past 12 Months

Household Profile: <i>(Demand Driver)</i>	Defined in Data Set As:	# Respondents
Destination Worker <i>(Job Driven)</i>	<ul style="list-style-type: none"> Main reason householder moved is to be close to their job Secondary reason householder moved was to be near public transportation Commuting 25 minutes or less to householder's job after moving 	1,700
Leisure/Recreation Seeker <i>(Lifestyle Driven)</i>	<ul style="list-style-type: none"> Main reason householder moved is for convenience to leisure/recreation activities Secondary reason householder moved was to be near public transportation 	440
Higher-Education Students <i>(Lifestyle Driven)</i>	<ul style="list-style-type: none"> Crosses many life-cycle stages Difficult to isolate appropriate householder survey responses 	NA
Public Transportation Oriented <i>(Lifestyle Driven)</i>	<ul style="list-style-type: none"> Main reason householder moved is to be close to public transportation 	3,000
Home-Based Business <i>(Lifestyle Driven)</i>	<ul style="list-style-type: none"> Main reason householder moved is to be close to public transportation Work more than 35 hours per week at home (self-employed) Work more than 15 hour wage and salary hours at home (flex scheduling and tele-commuters) 	3
Downtown Shoppers <i>(Lifestyle Driven)</i>	<ul style="list-style-type: none"> Crosses many life-cycle stages Difficult to isolate appropriate householder survey responses 	NA

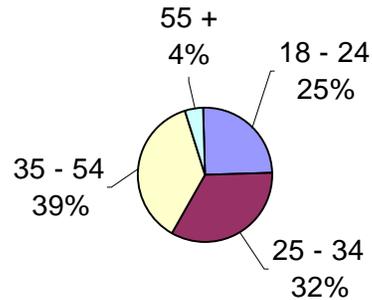
DESTINATION WORKERS

The destination for workers using light rail from Englewood is downtown Denver.¹⁰ The American Housing Survey indicates that of all households moving in the last 12 months, about 2% moved to be *both* (1) near public transportation and (2) close to their job. The following charts compare the demographics of the downtown workforce with recent mover's propensity to seek convenience to public transportation, their job, and have a 25 minute or less commute to work.

Makeup of Downtown Workforce



Households Moving For Work & Transit



A recent Downtown Denver Partnership survey of downtown workers provides useful information about downtown workers and their housing demand:

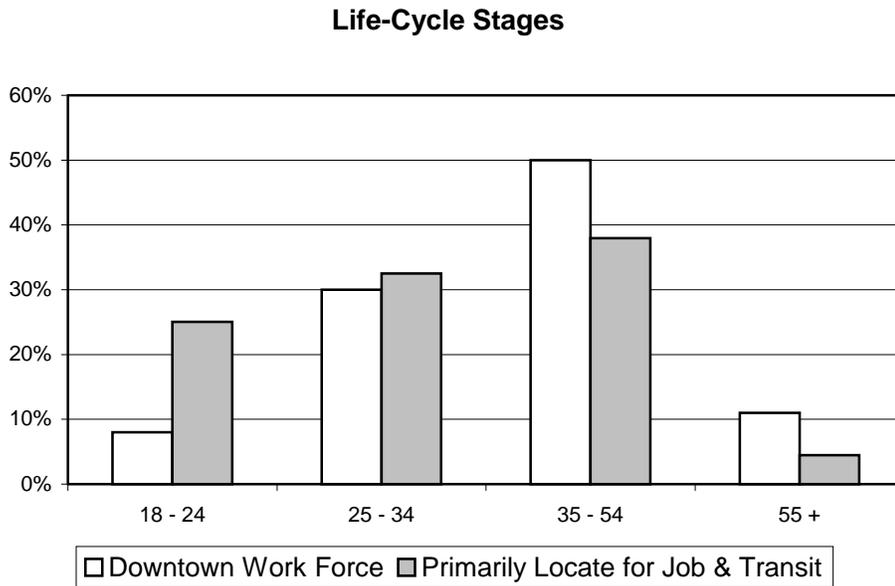
- Average one-way commute is 31 minutes.
- 68% of workers state they would like to continue working downtown, but 63 % state they would not live downtown.
- 23% of downtown workers live in Arapahoe and Douglas County (both serviced by the southwest light rail line).

Downtown Denver Partnership's survey confirms the overwhelming evidence that rush hour congestion suggests. There are many workers who commute to downtown Denver jobs from outlying areas. Even if every downtown Denver worker wanted to live downtown, there are not enough housing resources to accommodate them all. As the downtown employment market remains strong, so will demand for housing within easy commute distance to downtown.

According to the Downtown Denver Partnership, there are 4,500 firms employing 113,000 workers across LoDo, Central Downtown, and the Golden Triangle areas of downtown Denver.

¹⁰ Access to the Highlands Ranch Business Park may occur upon the extension of light rail past the Mineral Station; currently, however, the primary destination is downtown.

As expected, 80% of the downtown workforce is between the ages of 25- and 54-years old. 50% of downtown workers are less than 35 years in age. A side-by-side comparison between the existing workforce and propensity for job related housing demand is used below to discern relative market distribution by life-cycle stage:



- While high demand potential would be expected from workers 25 year-old or less, this represents just a small portion of downtown workforce demographics.
- The greatest potential demand appears to be in the 35+ age worker. Representing the largest number of workers, the greatest demand will be from the 35- through 54-year old workers.

The relative distribution of TOD housing market demand from destination workers is estimated as follows:

Relative Market Distribution	
18- to 24-year olds	0
25- to 34-year olds	1
35- to 54-year olds	2
55-year olds +	1
<i>0= shallow market 1=par with market 2=Deep Market</i>	

Summary of Observations and Market Implications: Destination Workers

- Downtown Denver is a desirable place to work and considered a positive draw for households making housing decisions based on the location of their job.

- The primary market for households moving to be near their job *and* near transit is in the 35-year old and older market.
- While a downtown Denver job is an attraction, most downtown workers would rather live outside the City.
- The employment center of downtown Denver generates housing demand for outlying sites, particularly those well serviced by transportation access.
- Light rail can link downtown Denver job opportunities to outlying housing options. Being just 20 minutes from downtown Denver by light rail, the GIW site presents an opportunity to capture downtown’s job driven demand.

LEISURE /RECREATION SEEKERS

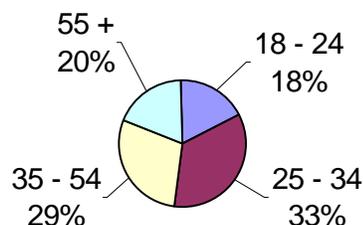
The destination for leisure and recreation seekers using light rail from Englewood are downtown Denver and its numerous and varied cultural and recreational amenities. Top downtown Denver visitor attractions in 2000 include:

- Pavillions/Shopping 3.5 million visitors
- Baseball 3.3 million visitors
- Pepsi Center Events 2.5 million visitors
- Six Flags 1.4 million visitors
- Performing Arts 1.1 million visitors

Demographic information on downtown visitors is difficult to obtain, and often dubious. Data at individual venues is often either not collected or proprietary in nature. A telephone survey of downtown destinations was conducted in an effort to document the characteristics of downtown entertainment seekers, and while actual data is limited, there is strong anecdotal evidence to support the claim that these attractions reach the spectrum of demographics.

The American Housing Survey indicates that of all households moving in the last 12 months, about 0.25% moved to be *both* (1) near public transportation and (2) convenient to leisure activities. The following chart illustrates this propensity to seek TOD housing by life-cycle stage:

Move For Recreation & Leisure



A recent study of performing arts in metropolitan Denver found 9.1 million visits to cultural and scientific facilities in the metropolitan district during 2001.¹¹ Demand for these facilities is not just for visitors; growth in the number of volunteers at these facilities has increased notably over the last few years as well. The importance of leisure and recreation is strong and growing amongst metro Denver residents.

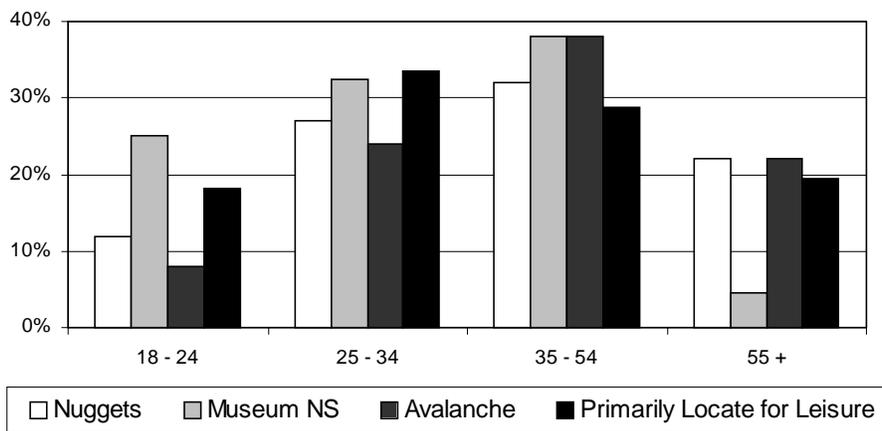
There is synergism between downtown Denver activities. A Downtown Denver Partnership, Inc. survey of downtown workers reported after work activities and participation rates to include the following activities. In general, the following lists lifestyle activities that people will participate in occasionally, or even frequently, after work:

- Restaurants 76%
- Bars & Clubs 56%
- Theatre/Concerts 56%
- Special Events 49%
- Sporting Events 47%
- Shopping 42%

While the percentage of households citing leisure activities as primary housing criteria is relatively low, there is significant anecdotal evidence that these activities are very important to household lifestyles. The importance of these activities will vary with age and life-cycle stage of the householder.

Visitor data is difficult to obtain, especially across multiple facilities and activities. The Pepsi Center public relations office and the Denver Museum of Nature and Science were willing to provide demographic visitor data for use in this study. The following chart compares this limited visitor data and American Housing Survey recent movers primarily concerned with being close to both transit and leisure activities.¹²

Life-Cycle Stages



¹¹ Colorado Business Committee for the Arts and Deloitte & Touche, October 2002.

¹² Reported age ranges slightly different; ranges indicated in chart are approximates.

Even the limited data presented illustrates that visitor demographics are spread across all age categories. Potential demand for housing convenient to leisure activities can arise in all demographic categories. Even if not the primary reason to locate, leisure activities provide a strong amenity as a secondary reason to choose a home.

In terms of those who seek a housing location based on such access, the market seems fairly strong for empty-nesters and retirees. Householders 55 years of age or older indicated their housing choice was based on proximity to leisure activities almost twice as often as any other age.

The relative distribution of TOD housing market demand from those who primarily locate to be near leisure activities is estimated as follows:

Relative Depth of Market	
18- to 24-year olds	1
25- to 34-year olds	1
35- to 54-year olds	2
55-year olds +	2

0= shallow market 1=par with market 2=Deep Market

Summary of Observations and Market Implications: Leisure/Recreation-Seekers

- Recreation and leisure activities provide entertainment to persons from all demographic categories.
- Easy access to leisure activities are a priority for many households, particularly those in the 55-year old or older age group.
- Leisure activities are synergistic with other household activities, such as after-work activities, and provide additional attraction to transit station locations providing such access.
- Access to leisure activities via light rail will be attractive to retirees and empty-nesters and an amenity to all householders that locate to GIW. Nearby Englewood commercial nodes, the Broadway commercial corridor and CityCenter, are emerging as entertainment and cultural destinations, although not currently strong housing demand drivers on their own. The addition of leisure seeking households will create additional demand for such emerging uses.

HIGHER EDUCATION STUDENTS

There are five institutions of higher education represented in downtown Denver. The Emily Griffith Opportunity School has a student body of almost 15,000 and Colorado State University’s downtown branch supports nearly 1,000 students. The Auraria Campus is home to The Metropolitan State College of Denver, the University of Colorado at Denver, and the Community College of Denver. These three Auraria institutions combine to create the largest student body on a single campus in Colorado with almost 35,000 students. In all, downtown Denver is host to about 50,000 college students attending both graduate and undergraduate classes. Because no campus housing is provided, all live off-campus.

Auraria Campus is served by the southwest light rail line and the downtown line. The campus has its own light rail stop and is the destination for a significant number of students.

In addition to these downtown Denver institutions, the Southwest Light Rail line services Arapahoe Community College located in Littleton, about four miles south of the GIW site. This campus educates almost 6,000 part-time and almost 2,000 full-time students. The GIW site is well situated between this educational facility and downtown jobs and lifestyle activities.

“Traditional” students are defined herein as those between the ages of 18 and 24 years who are going to school full-time or near full time. “Non-traditional” students are defined as generally older students working while attending school part time to change or further current career paths. Non-traditional students are likely to have more stable family situations and be more financially capable than their traditional counter-parts. These students are also *not* likely to make housing decisions based solely on proximity to their school. For this reason, only traditional students are being considered in this study as a distinct niche housing market.

The Colorado Commission on Higher Education reports that 56% of the Auraria student body is less than 25 years in age and 44% are older. Of the 50,000 total downtown students, 23,000 are estimated to be under 25 years of age. According to Auraria data, an estimated 25% already commute from the southern metro areas of Arapahoe and Douglas Counties. According to commuting surveys 18% of light rail riders are heading to the Auraria campus. Anecdotal evidence indicates that student demand for rental housing at the Englewood CityCenter is relatively strong, although many students would seek 2- or 3-roommate situations.

The relative distribution of TOD housing market demand from traditional higher education students is estimated as follows:

Relative Depth of Market	
18- to 24-year olds	2
25- to 34-year olds	0
35- to 54-year olds	0
55-year olds +	0
<i>0= shallow market 1=par with market 2=Deep Market</i>	

While this youngest demographic category is fairly mobile, likely with high turnover and short tenure at any one residence, it is assumed that this churn (moves-in versus moves out) nets to zero over time.

Summary of Observations and Market Implications: Higher Education Students

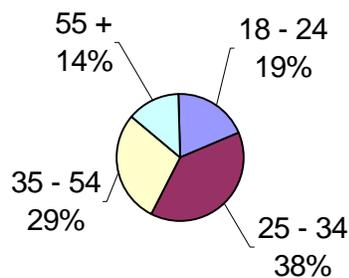
- College students are a notable portion of existing light rail riders.
- Because financial resources are likely somewhat limited among traditional (younger) students attending school full time, reliable public transportation is likely a desirable housing option.

- Students primarily demand short-term housing situations, i.e.- rental units. There may also be demand for ownership units by a student (or parent) who wishes to keep the unit as a longer term investment property.
- Reasonably priced housing options near a light rail station would be attractive to student households. Housing options that would appeal to this niche include units that would allow roommate situations.
- In that the overriding factor for this group is likely to be financial, successful student-type housing could be dispersed further from the light rail station and still provide a reasonable transportation option.

PUBLIC TRANSPORTATION ORIENTED

There are households that desire a location near public transportation for more intrinsic reasons such as a proactive choice to reduce traffic congestion and air pollution or simply to reduce the number of cars in their household. The American Housing Survey indicates that of all households moving in the last 12 months, about 2% moved to be near public transportation.¹³

Move For Public Transit



Households may locate in many locations where public transportation is available and survey responses do not indicate what type of public transit is sought. There is insufficient information to readily discern whether these households will or will not seek light rail TOD housing. With this limited information, it is assumed that 1% of movers would find light rail desirable (compared to 2% of all transit movers), and that demand is par with the market for all age categories. Relative market distribution for public transportation oriented households is therefore estimated:

¹³ The way in which the survey was administered and evaluated ensures that these survey responses are mutually exclusive from previous sources of demand evaluated herein and explicitly do not include households included elsewhere.

Relative Market Distribution	
18- to 24-year olds	1
25- to 34-year olds	1
35- to 54-year olds	1
55-year olds +	1
<i>0= shallow market 1=par with market 2=Deep Market</i>	

Summary of Observations and Market Implications: Public Transportation Oriented

- About 2% of households choose housing primarily based on access to public transportation.
- It is assumed that about half of these households would prefer to locate near light rail access.
- The GIW site could meet the needs of public transportation oriented households with the construction of the Bates light rail station.

HOME-BASED BUSINESSES

A transit-oriented location may be ideal for a home-based business. Appropriately designed housing units can be conducive to home-office residents. And light rail can provide home office users with easy access to downtown clients, business associates, and resources. Relatively easy access to downtown jobs is likely to be attractive to telecommuters who can be flexible with time, place, and/or location as employed by a downtown employer.

Unfortunately, the depth of the home office market is difficult to discern within the scope of this study. An evaluation of American Housing Survey responses yielded insufficient information to draw conclusions regarding this market. It is assumed that home-based businesses tend to be smaller entrepreneurial start-ups or “hobby businesses” for semi-retirees. Start-up entrepreneurs will likely need some degree of business experience and, consequently, this market niche is expected to be more concentrated in the older life-cycle stages. A somewhat younger telecommuter household is also recognized a source of housing demand.

Relative market distribution for home-based business households is therefore estimated::

Relative Market Distribution	
18- to 24-year olds	0
25- to 34-year olds	1
35- to 54-year olds	2
55-year olds +	2
<i>0= shallow market 1=par with market 2=Deep Market</i>	

Summary of Observations and Market Implications: Home-Based Businesses

- Home based businesses and telecommuters will find a TOD location attractive due to connectivity to client, vendor, and professional teaming networks.
- This market niche is likely to fall primarily into 35-year old and older life-cycle stages.
- Units targeting this niche should address home office needs such as space, utility, and telecommunications.
- The Bates Station will be an amenity to home-based businesses and telecommuters locating to GIW.

DOWNTOWN SHOPPERS

A transit-oriented location may provide excellent access to downtown destination shoppers. In fact, shopping is a top rated downtown activity by visitors. Unfortunately, because this activity cuts across all walks of life the depth of this market is difficult to discern. American Housing Survey responses yielded insufficient information to draw conclusions regarding this market. Convenience to shopping is viewed as an additional amenity of light rail, but this source alone is not likely to be a significant housing demand driver. Any affects are likely to be picked up in estimates of other demand sources.

It is unlikely that a significant number of households will choose a housing location solely on the basis of proximity to shopping. Relative market distribution of shopper-oriented households is likely to be fairly shallow and evenly distributed:

Relative Market Distribution	
18- to 24-year olds	0
25- to 34-year olds	0
35- to 54-year olds	0
55-year olds +	0

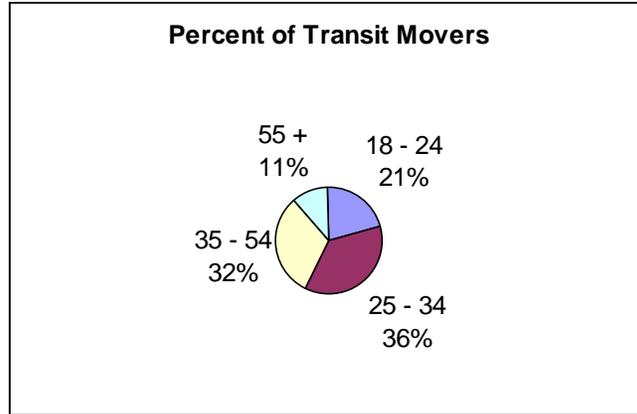
0= shallow market 1=par with market 2=Deep Market

Summary of Observations and Market Implications: Downtown Shoppers

- Shopping as a household activity cuts across all life-cycle categories.
- Convenience to shopping is viewed as an additional amenity of light rail, but this source alone is not likely to be a significant housing demand driver
- Access to downtown Denver or nearby Englewood shopping will be an amenity to GIW, but not a sole housing demand driver.

SUMMARY: DOWNTOWN DESTINATION DRIVEN HOUSING DEMAND

American Housing Survey respondents were culled to data sets as described in the previous analysis of housing market niches. The culled data sets (representing those most likely to be attracted to a TOD site) indicates that TOD housing demand generally falls into the following life-cycle stages:



These demographic categories can be generalized to represent various lifestyle housing needs regarding size and configuration of housing units. This can be useful for evaluating the need for various housing options or in designing projects to target a specific lifestyle niche. The following table summarizes the relative strength of various market niches for TOD housing at GIW:

Relative Market Distribution by Life Cycle Age

Household Type	Demand Driver	18 - 24	25 - 34	35 - 54	55 +
Downtown Shoppers	Access to urban shops and retailers	Shallow	Shallow	Shallow	Shallow
Public Transportation Oriented	Ease of public transportation	Good	Good	Good	Good
Destination Workers	Downtown job market	Shallow	Good	Strong	Good
Leisure/Rec Seekers	Restaurants, culture, theatre, clubs	Good	Good	Strong	Strong
Students	Higher education facilities	Strong	Shallow	Shallow	Shallow
Home-Based Businesses	Access to clients, colleges, resources	Shallow	Good	Strong	Strong

It has been estimated herein that destination worker, leisure seeking, and public transportation oriented households cumulatively comprise about 3.25% of the overall market. Demand from other sources may raise that penetration rate by some small amount. Given metro Denver growth of around 12,750 households for the 2001/2002 period, a 4% penetration indicates potential metro-wide TOD housing demand around 500 households annually.¹⁴ Given light rail’s limited service area, there will be little competition for GIW development until the next service expansion in 2007.

¹⁴ The overall size of the market for TOD housing will fluctuate with population growth over time and specific absorption at GIW would entail a more detailed analysis of absorption by product type.

LOCAL EMPLOYEE HOUSING DEMAND

Englewood based businesses employ workers, some of whom live in Englewood, some of whom do not live in Englewood, and some of whom would live in Englewood if appropriate housing options were available. To determine the extent of this housing demand driver, the City of Englewood commissioned an employee/employer survey to identify commuting and housing patterns.¹⁵

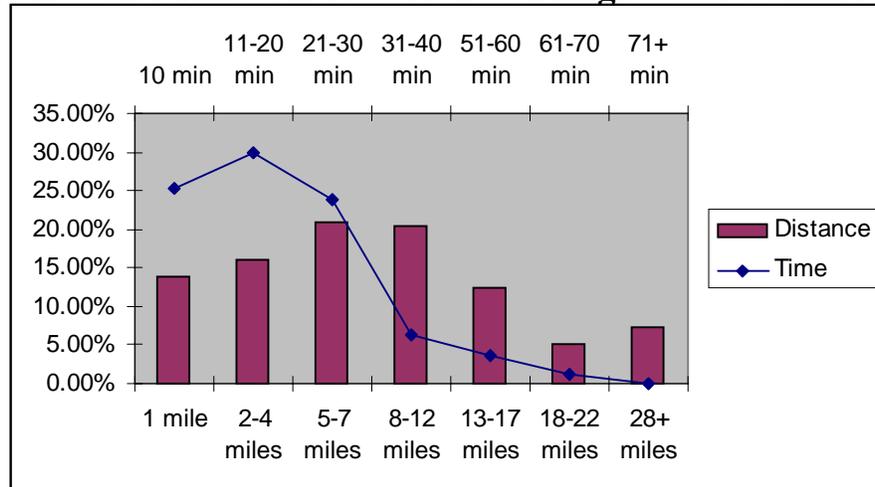
ENGLEWOOD'S LABOR MARKET COMMUTING AREA

According to the Employee Survey, almost four out of five workers at Englewood jobs report a commute time of thirty minutes or less; and over half report a commute time of twenty minutes or less. This appears to be more or less consistent with the metropolitan average of 25 minutes. Commuting characteristics of Englewood employees include:

- 79.1% of Englewood employees commute 30 minutes or less to work.
- 55.3% report a commute time of 20 minutes or less.
- Only 4.8% of Englewood employees commute longer than 50 minutes
- The average commute time for an Englewood employee is estimated to be 25 minutes, which is consistent with the metropolitan average.
- 71.4% of Englewood employees live within 12 miles of their place of employment

The graph below demonstrates the overwhelming majority of commuters taking thirty minutes or less to get to work, as well as the fact that over two thirds of Englewood employees work within 12 miles of their place of residence.

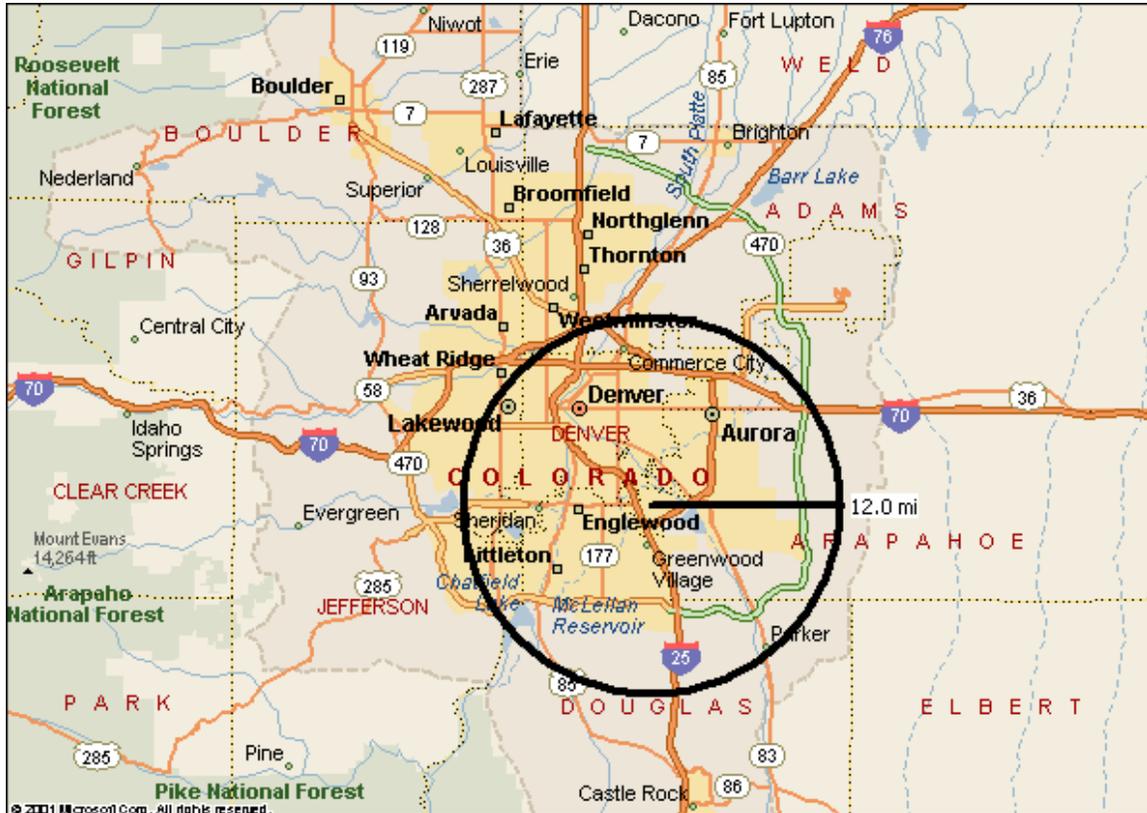
Distance and Time Characteristics of Englewood Commuters



Source: Englewood Employee Survey, Development Research Partners, 2002

¹⁵ Development Research Partners, An Evaluation of Englewood's Housing Needs, 2002.

Thus, it can be inferred from this information that the geographic boundary of Englewood's labor market is defined by a 30 minute commute, or generally 12 miles from home to work.¹⁶ This distance is roughly illustrated by the following map:



Of the 22,900 existing employees at Englewood businesses, about 22.5% currently live in Englewood.

EMPLOYEES' HOUSING CHOICE

According to the Employee Housing Survey, Englewood could potentially attract more than 26% of non-resident existing employees, nearly 850 households, if housing options were available. Based on employer responses it is conservatively estimated that there will be 1,160 new employment positions created in Englewood over the next three years; of these an estimated 304 new employees would demand housing in Englewood.

¹⁶ It should be noted that there are a number of workers who are willing to commute from greater distances. Some Englewood commuters travel to work from as far away as Thornton, Parker and Golden.

The housing option missing in Englewood is higher priced housing options and associated square footage, bed and bath configurations. Approximately 30% of existing Englewood employee households earn over \$75,000 per year, enabling them to support homes priced over \$200,000. Only 11% of Englewood owner occupied homes are valued over \$200,000. Given the There is a clear gap between higher wage workers housing needs and housing available in Englewood.

SUMMARY: LOCAL EMPLOYEE DRIVEN HOUSING DEMAND

- Englewood businesses employ a range of skilled employees at a variety of wage rates. There is a notable pool of higher wage employees, of which about 26% stated they would live within the City if the right housing options were available.
- The GIW site offers buildable land with easily accessible downtown amenities (leisure, recreation, shopping, higher education).
- Higher wage households have a desire to live in the City and command the income necessary to meet TOD price premiums for lifestyle amenities provided by Light Rail.
- Proximity to light rail can spur investment and upgrading of housing stock in the secondary and tertiary light rail zones of influence, accommodating employees seeking lower-cost housing.
- Englewood businesses anticipate employment growth in high wage labor categories which would support long-range development of both lower-priced (<\$150,000) and higher-priced (>\$200,000), modern, owner-housing options in Englewood.
- Housing market research indicates need for higher-end rental units in Englewood to accommodate employees of local businesses.

LOCAL HOUSING MARKET CHURN DEMAND

In 2000, there were 15,424 housing units in Englewood with 14,882 of those units occupied. The current vacancy rate of 3.5% represents a low, healthy level so there is not currently a general situation of total housing over-supply. While the current housing market appears in balance, there is the potential to meet changing housing preferences of residents.

Englewood residents tend to be long-term and have deep roots in the area. Particularly in the oldest areas of the city, such as GIW's North Englewood, small, older bungalow style homes are the norm. Many Englewood residents are elderly people living in their long-term residences on fixed incomes. Anecdotal evidence suggests that elderly residents desire to remain in their life-long neighborhood, no longer want or can maintain their home, and cannot afford sizeable mortgages. There is need for lower-maintenance, lower-cost housing options in the city.

The Englewood school district reports a steady out-flow of families. As reported, the pattern is one of young couples moving to an Englewood starter home, having kids, and seeking a larger home outside of the city to accommodate their expanding families and incomes. According to

the school district, it is not unusual for families to keep their children enrolled in (or to return to) the Englewood school system; parents have specifically noted the lack of housing options as a reason they left the City boundaries.

Further, a high percentage of owner-occupied homes in Englewood are owned without a mortgage and have seen notable appreciation over the years. This sets up a situation where many residents are equity rich and lifestyle poor. There is an opportunity to provide housing options to enable these households to “cash out” of their existing homes and “move up” to a newer home and/or higher amenity lifestyle.

As previously noted, a recent evaluation of Englewood’s housing market identified a lack of housing product in the “under \$100,000” and the “over \$200,000” price range for ownership units. This evaluation precisely fits the housing demand from existing resident churn as discussed above.

There is a clear need for housing options in Englewood to accommodate the life cycle progression of its residents. While the transition of existing residents into new housing units will not impact the overall demand for housing (one unit is vacated while another becomes occupied) turnover in units places a greater variety of housing units on the market. Long occupied bungalows become starter homes for young couples who will eventually seek move-up housing.

SUMMARY: LOCAL CHURN DRIVEN HOUSING DEMAND

- Englewood residents have voiced concern over the lack of housing options in the City. In many cases this concern is expressed by leaving the City altogether.
- Many long-term residents have a need to address their physical environs and move into housing best suited to their aging life-cycle stages.
- Many long-term residents have the financial ability to move into new housing if it were to become available in Englewood.
- Young families often leave the City due to a lack of move-up housing for growing families. This is particularly true for the older neighborhoods such as GIW’s North Englewood.
- The GIW site and surrounding area of influence offers easily accessible downtown amenities (leisure, recreation, shopping, higher education) for move-up housing. Buildable land in close proximity to the station can accommodate higher-end, higher density housing. Increased value premiums can spur investment and upgrading of older homes within the secondary zones of light rail influence.
- Englewood residents could support long-range development of both lower-priced (<\$150,000) and higher-priced (>\$200,000), modern, owner-housing options in Englewood.
- Housing market research indicates need for higher-end rental units in Englewood to accommodate resident demand for rental units.

POTENTIAL BUSINESS DEMAND FOR A GIW LOCATION

While historically industrial in nature, pockets of retail, commercial, and residential uses have already popped up along the Southwest Light Rail corridor. Indeed, light rail has the potential to take the entire corridor into new economic directions. This section of the study will evaluate the Southwest Corridor light rail line's impacts on the economic development potential in the City of Englewood and at the GIW site.

LIGHT RAIL'S AREA OF INFLUENCE

A 1997 study of the Bay Area Rapid Transit (BART) system in San Francisco, California, shows that the value of office space is influenced up to only about 2,000 feet from transit stations, and retail values have a premium only as far as 500 feet from stations. Other studies show similar results, that premiums on commercial uses rapidly diminish as distance from transit stations increase.

This is not surprising considering the functionality of commercial space. Retail success is dependant upon market demographics, access, and exposure. A location in close proximity to a light rail line increases visibility and exposure; near a light rail stop pedestrian traffic increase as well. The closer to a transit station, the greater the variety of regional market customers that are exposed to that retailer. As location moves further from the station, potential customers revert from a regional to a local market. This retail premium

A primary advantage of a light rail location to an office user is access to a larger labor market. Light rail provides a transportation option to workers in outlying areas. Such commuting options can enlarge the potential labor pool available to that business. As a corollary, an easier commute to that job can make attracting and retaining workers much easier. For those businesses whose market network requires downtown access, proximity to the transit station can be essential and efficiency can drop significantly as transit time increases.

Of critical importance is maintaining convenience for workers. While an office based business may not need the visibility and exposure that a retail business may require, if the location is too distant from the station, light rail can become relatively inconvenient to employees. Based on the experiences of transit stations around the country, and the somewhat obvious needs of the business community, the highest transit-oriented premiums will go to those sites closest to the transit station. Being located within the ¼ mile primary zone of influence is expected to be a requirement for businesses to view the Bates Station as an amenity.

HOW DO BUSINESSES DECIDE WHERE TO LOCATE?

There are many factors businesses consider in choosing a location that may include:

1. Access to a diverse and talented labor market;
2. Access to potential suppliers and customers;
3. Access to cultural and recreational opportunities;

4. The variety of local housing options;
5. Access to companies and industries for synergistic business relationships;
6. Highway and other local transportation characteristics needed for the efficient movement of employees, product and supplies.
7. The presence of a recognized university or research center; and
8. The quality of primary and secondary educational facilities.

Every business differs as to which factors are most important. Indeed, the importance of each factor can fluctuate due to changing market conditions or when comparing two or more individual locations.

Light Rail's Impact on Business Location

Adding light rail to a location, such as constructing the proposed Bates Station at GIW, can significantly impact the business location criteria identified above. Providing a light rail option to businesses improves their overall accessibility to labor markets within the light rail corridor, to customers and clients, and a variety of housing options available to employees by providing additional commuting options to employees.

Given Englewood's central location, the light rail line can open up new labor markets at the far ends of the line. New or expanding Englewood business can take advantage of labor skill sets that these labor markets can provide. For example, the end-of-the-line labor markets illustrated below highlight access to professionals (concentrated in the south market) and office support workers (concentrated in the north market).

ENDPOINTS OF THE LIGHT RAIL LINE¹
Labor Market Occupational Characteristics

Description:	Southern terminus of the SW line at Highlands Ranch	Northern terminus of the Downtown line northeast of Downtown Denver	
2000 Census Tract:	141.06	23.00	26.01
Occupation:			
Management/Professional	53.1%	32.8%	35.3%
Service and support	7.0%	21.9%	18.4%
Sales/Office	29.8%	22.2%	29.8%
Farming/Fishing/Forestry	0.0%	0.4%	0.0%
Construction/Extraction/Maintenance	4.5%	11.2%	4.5%
Production/Transportation/Materials Moving	5.7%	11.4%	12.0%

1. Does not consider expansion to the southeast or other corridors

Source: US Census Bureau; Development Research partners

In many instances, providing options to attract and/or retain employees can be a significant factor in maintaining a qualified work force. Gart Sports, a multi-state sporting goods retailer,

recently relocated its headquarters to a site near the Englewood light rail station. An interview with a Gart Sports real estate executive revealed that proximity to light rail was a significant deciding factor during the relocation of the company's offices to the City of Englewood. The sporting goods retailer considers its employee base to be one of its largest assets, and wished to minimize employee loss as a result of the move. The company administered a survey to its employees to ascertain among other things where the employees lived and how they got to work. While actual survey results were kept confidential, it was stated in the interview that the company's decision to locate in Englewood along the Southwest Corridor light rail line was influenced by the survey. In fact the spokeswoman for Gart stated that the existence of the light rail line was among the top five considerations for choosing the new location, citing building size, modern facilities and parking availability as other important issues. In fact, according to the executive, other potential office locations in the Denver Tech Center and on the west side of Denver were ruled out partly based on their lack of transit options.

LIGHT RAIL'S IMPACT ON LABOR MARKETS

Business may view increased access to labor markets as an amenity. They may also view increased convenience as important to attracting and retaining their workforce. In regards to this study, GIW's location on the light rail line needs to be evaluated to truly understand light rail as an amenity to the labor force.

Light rail commuting convenience can be measured in time. In the current light rail configuration, the GIW site is centrally located on a relatively short light rail line. Located more or less in the middle of the transit corridor, the commute to Englewood from either end of the LRT line takes roughly 15 minutes (18 minutes from 18th and Stout Station, 13 minutes from Mineral).

Over 90% of Englewood based employees surveyed state they commute to work via automobile, while less than 1% of Englewood's labor force commutes via light rail. Interestingly, more than half of the employees report that they take either Santa Fe or Broadway either north or south to their jobs; yet, not one of these employees uses light rail to get to work. In fact, one employee states that he or she lives 13 to 17 miles from work and takes 31 to 40 minutes via Broadway north five days a week, and never commutes via light rail. More than half of Englewood employees commute less than 20 minutes to work. These employees may not consider using light rail simply because they are already close enough to drive the entire way to their place of work.

In its essence, light rail provides a transportation option based on convenience provided to the rider. The fact that not many current Englewood-based employees currently use the rail is attributed to two related factors:

1. Because of the southwest line's relatively short length and Englewood's central location on the line, there may be relatively little additional convenience generated to these workers; and
2. Englewood currently lacks businesses in proximity to its transit stations.

Businesses that are easily accessible to the transit line will attract light rail commuters. Gart Sports located to within a ¼ mile of the Englewood Light Rail Station citing workforce retention

as a main reason. The under-developed land at GIW and the proposed Bates Station could readily accommodate new retail and office businesses oriented to light rail access. This is particularly true when considering housing options that can be incorporated into a mixed-use development project at GIW.

SUMMARY: GIW AS A TOD BUSINESS LOCATION

- Light rail can be an amenity to a business by providing access to labor, suppliers, customers, educational facilities, transportation links, and housing. In particular, light rail offers a comparative advantage to businesses that are labor intensive.
- Retail business benefit most from a location in close proximity to a transit station that offers high visibility, and good pedestrian traffic. A transit location closest to the station would provide the best transit-oriented characteristics.
- Office based businesses will benefit from labor market access provided by light rail. That benefit will extend to the ¼ mile primary zone of influence, but fade quickly afterward.
- Access to labor markets is a benefit to office businesses locating near light rail stations. The extent to which this perceived benefit is realized is uncertain. GIW's location on the rail line provides only marginal transit convenience to the existing labor market.
- The nature of businesses locating to GIW in the future will likely reflect the types of labor to which the rail line provides access, and consequently, labor will be more apt to utilize light rail.
- The addition of TOD housing options at GIW itself will positively influence the desirability of GIW as a business location.

IN CLOSING

By linking the southern communities of the metro area to downtown Denver, light rail provides commuting options for residents living and/or working along the corridor. The light rail line can increase development potential of land adjacent to and surrounding local light rail stations. As every regional business environment is different, so too are the parts that make up the whole of each region. Santa Fe Drive Transportation Corridor connects downtown Denver with the southern suburbs and beyond; segueing into US Highway 85 south of Littleton. The corridor traverses several municipal jurisdictions, as well as a wide range of different land uses in various stages of development and repair.

Transit stations, where riders board and disembark the trains, connect the light rail transit system to the surrounding communities. Land uses adjacent to these stations materialize in two distinct ways. First, they can be a reflection of the needs and desires of the local ridership that gets on at that station and the destinations to which they travel. Second, uses can define the transit station as a destination. The linkages and development opportunities provided by a light rail station will attract demand for housing and businesses.

Housing market demand will draw from all walks of life and across all household age groups. Evaluating TOD opportunities is a matter of identifying the depth of demand for various market niches and identifying the housing product that meets basic housing needs. Housing needs for each potential demand niche is determined by the life-cycle stages characteristic to that niche.

Proximity to a transit station is likely to be a high priority for businesses, both office and retail. Close access to a transit station, balanced with life-style choices, are likely to drive resident decisions. Transit characteristics appealing to businesses (visibility, proximity to stations) may be less appealing to residents (noise, visual impacts, criminal potential). These different views of the same characteristics lead to synergistic separation of uses, whether vertical or horizontal (land use patterns).

LOOKING AHEAD

There are plans to extend the Southwest line further south to C-470, and then east along C-470 to Lucent Boulevard. While not yet officially approved, this extension would improve accessibility to Douglas County riders and ultimately connect the line to the Highlands Ranch Business Park, a significant new Class A/B office park with over six million square feet of commercial space planned at build out. Connecting this major employment center and the downtown CBD could facilitate many synergistic relationships at either end of the light rail line, as well as economic development and residential opportunities along the corridor. This new line would connect employment centers at either end of the line and tap into labor markets along the entire length. The Southwest line has the potential to truly be a bi-directional transit route, rather than a unilateral means of getting to downtown Denver.

The proposed southern extension of the Southwest light rail line will consist of two potential new stations. If these stations are approved as proposed, the first will be located at the intersection of

Santa Fe Drive and C-470; and the other will be at the intersection of Lucent Boulevard and C-470. The Lucent Boulevard station will be the southern end of the southwest line. Once the southwest line is complete, it will service two major employment centers – one on either end of the line.

The first is the currently served employment center of the central business district of downtown Denver. The second is the Highlands Ranch Business Park, a 500-acre business park which currently has no less than 1,000,000 square feet of Class ‘A’ office space, and over 6,000,000 square feet of commercial space planned. This opens up tremendous opportunities for the handful of light rail stations between these two employment centers, not only in the housing market but also in the secondary office and related business services market.

Once the rail line is extended to serve both employment centers, demand for housing in areas between these centers is anticipated to increase significantly, especially along the light rail corridor and at light rail stations. As well, the secondary office market should become more and more favorable along the corridor; especially in a centralized location, with quick access to both employment centers.

COMMUNITY GOALS

As discussed herein, the proposed Bates Light Rail Station can stimulate demand for housing and businesses at the GIW site. The GIW site represents an opportunity to attract new development and investment in existing development to North Englewood. The analysis presented herein illustrates the various market drivers within which to implement a community plan to meet it’s goals. The implications all support a successful effort to:

- Promote a diverse mix of housing types, prices and sizes,
- Maintain and improve the existing housing stock, and
- Improve the jobs/housing balance.

SUMMARY AND CONCLUSION

- There is opportunity to take the now vacant GIW site and develop a neighborhood setting and unit mix targeted to work, leisure and public transit lifestyle choices in the primary zone of influence (¼ mile radius from station).
- The “light rail influence” may provide the value-added opportunity to promote renovation and upgrades of the existing housing stock in secondary and tertiary zones of influence (greater than a ¼ mile radius from station).
- A well-planned mixed-use development can foster TOD business development along with providing needed housing options to the Englewood community.
- Economic synergy created between Bates Station, CityCenter, and the Broadway commercial corridor will likely improve the business climate in Englewood. The increase in “life-style”

seeking residents can foster the development commercial, recreational and cultural related facilities within this “economic enclave.”

- The diversity in market demand for commercial and residential development can be a positive market force in the City of Englewood, given appropriate development of the GIW site.

APPENDICES

APPENDIX A: LIFE CYCLE STAGES DEFINED

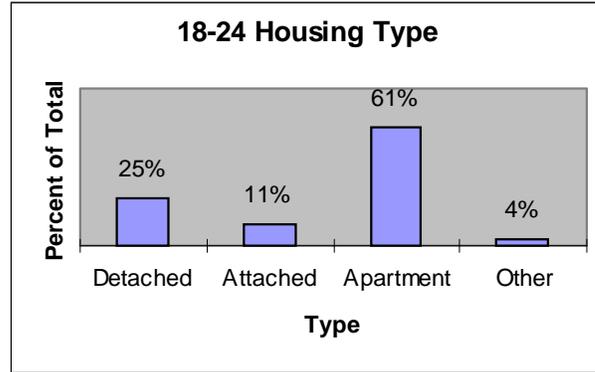
As people age, they go through various stages of life. For example, a typical life-cycle progression might be from school to work to parenthood to retirement. While this is not necessarily the path everyone's life might take, it is considered the standard progression. There are five life-cycle stages¹⁷ used herein:

- **Children (18 years and under).** This age group is assumed to represent children who live at home and therefore does not contribute directly to housing demand.
- **Students & Early Workforce (18 to 24 years).** This age group is primarily made up of college students and young working adults. They are likely to be of modest means, possibly still having financial ties to their families. Their life styles tend to be unsettled, prone to change, and housing tenures tend to be short.
- **Establishing Workforce (ages 25 to 34 years).** This age group is considered the young workforce age group. They are likely to be in young family situations, either with no children or fewer, younger children. Their work situation tends to be more secure than the previous age group's, but not yet considered stable. This is typically considered a very transitional life-cycle stage.
- **Stable Workforce (ages 35 to 54 years).** This age group is considered the established workforce age group. They are most likely to have an established career and income. They typically have children of all ages. This age group is considered the most stable and least likely to move around once they have found a place to raise their children.
- **Empty Nesters (55 years and over).** While the younger portion of this age group are likely to still be in their final years of employment, the bulk of this growing demographic is considered to be made up of seniors and retirees. Characteristically, this group seeks a more maintenance-free life style. As they approach retirement, members of this age group tend to desire the flexibility that allows them to take advantage of the retirement life style, such as traveling or having a second home elsewhere. Some are no longer willing or able to take care of the many responsibilities of single-family housing. Their children are typically older, if not grown and self-sufficient. This age group is also likely to have the financial means to afford the housing option that meets their needs and desires.

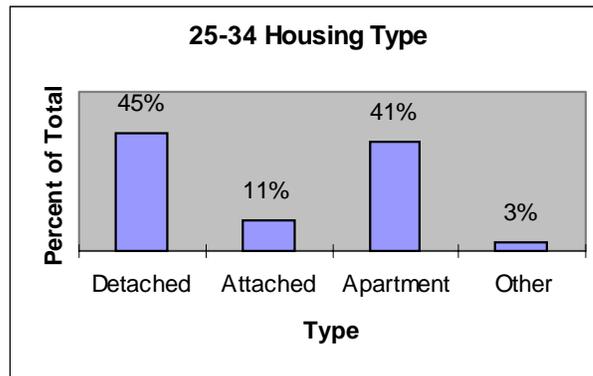
¹⁷ These categories are generalizations and intentionally broad in nature; labels are for reference only.

APPENDIX B: HOUSING PRODUCT TYPES BY LIFE CYCLE STAGE

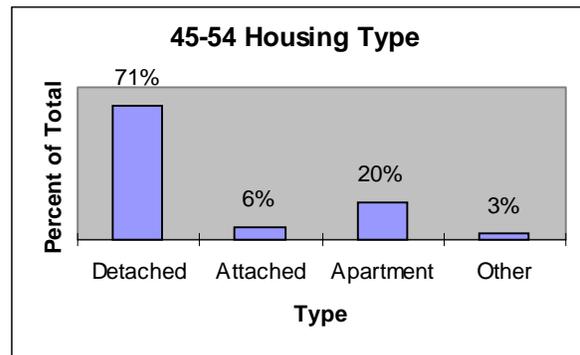
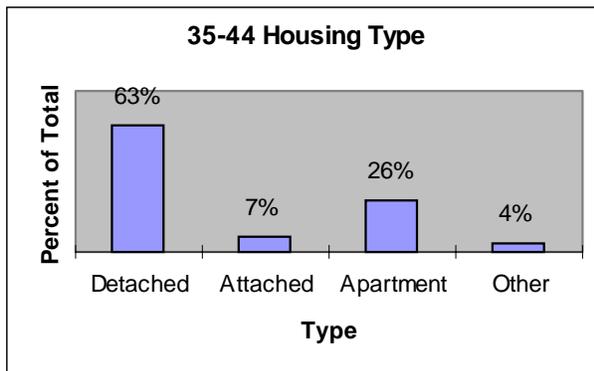
- Most people between the ages of 18 and 24 years occupied “Apartment” housing, while about a third occupied either “Attached” or “Detached” housing.



- Over half of those aged 25 to 34 years lived in either “Attached” or “Detached” housing, with just under that figure occupying “Apartment” style housing.



- As expected, both 35 to 44 year olds and 45 to 54 year olds lived primarily in “Detached” housing, with just about one fifth of both ranges occupying “Apartment” housing.



- The same holds true for those 55 and older, with about two thirds occupying “Detached” housing and one in five occupying “Apartment” housing.

